

What is claimed is:

1. An antibody which specifically binds to hLH β cf without cross-reacting with hLH, hLH β or hCG β cf.
- 5 2. The monoclonal antibody of claim 1 designated B505.
3. A hybridoma cell line producing the monoclonal antibody of claim 2 (ATCC Accession No.12000).
4. An hLH β cf antibody which competitively inhibits the binding of the monoclonal antibody of claim 1.
- 10 5. A method for determining the amount of hLH β cf or hLH β cf-related molecule in a sample comprising steps of:
 - (a) contacting the sample with an antibody which specifically binds to hLH β cf without cross-reacting with hLH, hLH β or hCG β cf under condition permitting formation of a complex between the antibody and hLH β cf; and
 - (b) determining the amount of complexes formed, thereby determining the amount of hLH β cf or hLH β cf-related molecule in the sample.
- 15 6. The method of claim 5, wherein the antibody is produced by the hybridoma cell line accorded with ATCC Accession No.12000.
- 20 7. A method for determining the amount of hLH β cf or hLH β cf-related molecule in a sample comprising steps of:
 - (a) contacting at least one capturing antibody selected from a group consisting of B503, B504

and B509 with a solid matrix under conditions permitting binding of capturing antibody with the solid matrix;

- 5 (b) contacting the bound matrix with the sample under conditions permitting binding of the antigen present in the sample with the capturing antibody;
- 10 (c) separating the bound matrix and the sample;
- (d) contacting the separated bound matrix with an antibody which specifically binds to hLH β cf without cross reacting with hLH, hLH β or hCG β cf under conditions permitting binding of antibody and antigen in the sample; and
- 15 (e) determining the amount of bound antibody on the bound matrix, thereby determining the amount of hLH β cf or hLH β cf-related molecule in the sample.

8. A method of claim 7, wherein the antibody is B505.

9. A method of claim 7, wherein the step (c) comprising:

- 20 (i) removing of the sample from the matrix, and
(ii) washing the bound matrix with an appropriate buffer.

10. A method for determining the amount of hLH β cf or hLH β cf-related molecule in a sample comprising steps of:

- 25 (a) contacting a capturing antibody which

specifically binds to hLH β cf without cross-reacting with hLH, hLH β or hCG β cf with a solid matrix under conditions permitting binding of the antibody with the solid matrix;

- 5 (b) contacting the bound matrix with the sample under conditions permitting binding of the antigen present in the sample with the bound capturing antibody;
 - 10 (c) separating the bound matrix and the sample;
 - 10 (d) contacting the separated bound matrix with at least one detecting antibody selected from a group consisting of B503, B504 and B509 under conditions permitting binding of antibody and antigen in the sample; and
 - 15 (e) determining the amount of bound antibody on the bound matrix, thereby determining the amount of hLH β cf or hLH β cf-related molecule in the sample.
11. A method of claim 10, wherein the antibody which specifically binds to hLH β cf without cross-reacting with hLH, hLH β or hCG β cf is B505.
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12. A method of claim 10, wherein the antibody is B503.
 13. A method of claim 5, 7 or 10, wherein the antibody is labelled with a detectable marker.
- 25 14. A method of claim 13, wherein the detectable marker is a radioactive isotope, enzyme, dye or biotin.
15. A method of claim 14, wherein the radioactive isotope

is I^{125} .

16. A method of detecting ovulation in a female subject comprising:

(a) obtaining samples from the female subject; and

5 (b) determining the amount of hLH β cf or hLH β cf-related molecule in the samples, the presence of a peak of hLH β cf indicating the occurrence of ovulation.

17. A method of claim 16, wherein step (b) comprising:

10 (i) contacting the sample with an antibody which specifically binds to hLH β cf without cross-reacting with hLH, hLH β or hCG β cf under conditions permitting formation of complex between the antibody and hLH β cf; and

15 (ii) determining the amount of the complex, thereby determining the amount of hLH β cf or hLH β cf-related molecule in the samples.

18. A method of claim 17, wherein the antibody is labelled with a detectable marker.

20 19. A method of claim 18, wherein the detectable marker is a radioactive isotope, enzyme, dye or biotin.

20 21. A method of claim 19, wherein the radioactive isotope is I^{125} .

25 21. A method for reducing the amount of hLH β cf or hLH β cf-related molecule in a sample comprising steps of:

- 5 (a) contacting the sample with an antibody which specifically binds to hLH β cf without cross-reacting with hLH, hLH β or hCG β cf under conditions permitting formation of complex between the antibody and hLH β cf; and
- (b) removing the complex formed, thereby the amount of hLH β cf or hLH β cf-related molecule in the sample.
- 10 22. A method of claim 21, wherein the removing step comprising:
- (i) contacting the complex with protein A under conditions permitting formation of protein A with an antibody; and
- 15 (ii) removing the complex formed, thereby removing the amount of hLH β cf or hLH β cf-related molecule in the sample.
- 20 23. A method of claim 22, further comprising contacting the complex with a secondary antibody under conditions permitting binding of this secondary antibody with the first antibody prior to step (i).
24. A method of claim 21, wherein the antibody is linked to a solid matrix.
25. The sample with reduced amount of hLH β cf or hLH β cf-related molecule produced by the method of claim 21.
26. A method of claim 5, 7, 10, 16 or 21, wherein the sample is a urine sample or a blood sample.